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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/660,317	09/12/2000	Michael D. Camras	M-8633 US	6930

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EXAMINER	
LEWIS, MONICA	
ART UNIT	**PAPER NUMBER**
2822	

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/660,317	CAMRAS ET AL.	
	Examiner	Art Unit	
	Monica Lewis	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-27,30-36,43-46 and 51-80* is/are pending in the application.

4a) Of the above claim(s) *1-8,10-27,30-36,43-46,51-59 and 74-80* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *61-68 and 71* is/are rejected.

7)☒ Claim(s) *69,70,72 and 73* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 September 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the election filed January 15, 2004.

Election/Restrictions

2. Applicant's election of Embodiment IV on 1/15/04 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 60-73 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 32-79 of copending Application No. 09/880,204. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both deal with light emitting devices.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

In regards to claims 60-73, Camras et al. ("Camras") discloses the following:

a) a stack of semiconductor layers, active region, transparent bonding layer (See Claims 32-79).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 61-66 are rejected under 35 U.S.C. 103(a) as obvious over Seki et al. (U.S. Patent No. 5,553,089) in view of Anthony *Dielectric Isolation of Silicon by Anodic Bonding*.

In regards to claim 60, Seki et al. ("Seki") discloses the following:

a) a stack of layers including semiconductor layers comprising an active region (13) (For Example: See Figure 1); and

b) a transparent lens (36) attached to said stack by a bond effected at an interface disposed between said lens and said stack (For Example: See Figure 1 and Column 3 Lines 44-55.

In regards to claim 60, Seki fails to disclose the following:

a) a transparent bonding layer disposed between said lens and a surface of said stack, said transparent bonding layer bonding said lens to said stack, said transparent bonding layer comprising an inorganic material.

However, Anthony discloses anodic bonding between glass (For Example: See Page 1240 and 1241). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Seki to include anodic bonding between glass as disclosed in Anthony because it aids in providing a strong bond (For Example: See Page 1240 and 1241).

Additionally, since Seki and Anthony are both from the same field of endeavor, the purpose disclosed by Anthony would have been recognized in the pertinent art of Seki.

In regards to claim 61, Seki discloses the following:

a) transparent bonding layer is formed from a material selected from the group of optical glass, chalcogenide glass, III-V semiconductors, II-VI semiconductors, group IV semiconductors, metals, metal oxides, metal fluorides, yttrium aluminum garnet, phosphides, arsenides, anlimonides, nitrides, and combinations thereof (For Example: See Page 1240).

In regards to claim 62, Seki fails to disclose the following:

a) transparent bonding layer includes one or more luminescent materials that convert light of a wavelength emitted by said active region to at least another wavelength.

Although Anthony fails to specifically disclose the limitations listed above, the same material is utilized in Anthony as in Applicant's invention therefore it would have the same characteristics.

In regards to claim 63, Seki fails to discloses the following:

a) bonding layer has a thickness less than about 500 Angstroms.

However, Anthony discloses a bonding layer that has a thickness less than 500 Angstroms (For Example: See Page 1240). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Seki to include a bonding layer that has a thickness less than 500 Angstroms as disclosed in Anthony because it aids in providing a strong bond (For Example: See Page 1240 and 1241).

Additionally, since Seki and Anthony are both from the same field of endeavor, the purpose disclosed by Anthony would have been recognized in the pertinent art of Seki.

Finally, the applicant has not established the critical nature of a bonding layer that has a thickness less than 500 Angstroms. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir.1990). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have various ranges.

In regards to claim 64, Seki discloses the following:

a) surface includes a surface of one of said semiconductor layers (For Example: See Figure 1).

In regards to claim 65, Seki fails to discloses the following:

a) bonding layer has an index of refraction greater than about 1.5 for light emitted by said active region.

Although Anthony fails to specifically disclose the limitations listed above, it appears that it is known that the refractive index of silicon oxide can range from 1.0-2.65 (See Bulk Measurement).

In regards to claim 66, Seki discloses the following:

a) surface includes a surface of a transparent superstrate layer (11) disposed above said semiconductor layers (For Example: See Figure 1).

7. Claims 61-66 are rejected under 35 U.S.C. 103(a) as obvious over Seki et al. (U.S. Patent No. 5,553,089) in view of Osenbach et al. *Low Cost/High Volume Laser Modules Using Silicon Optical Technology*.

In regards to claim 60, Seki et al. ("Seki") discloses the following:

a) a stack of layers including semiconductor layers comprising an active region (13) (For Example: See Figure 1); and

b) a transparent lens (36) attached to said stack by a bond effected at an interface disposed between said lens and said stack (For Example: See Figure 1 and Column 3 Lines 44-55.

In regards to claim 60, Seki fails to disclose the following:

a) a transparent bonding layer disposed between said lens and a surface of said stack, said transparent bonding layer bonding said lens to said stack, said transparent bonding layer comprising an inorganic material.

However, Osenbach et al. ("Osenbach") discloses ALO utilized as a bonding attachment for a lens (For Example: See Page 581). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Seki to include ALO utilized as a bonding attachment as disclosed in Osenbach because it aids in providing extremely stable coupling over environmental extremes (For Example: See Pages 581-582).

Additionally, since Seki and Osenbach are both from the same field of endeavor, the purpose disclosed by Osenbach would have been recognized in the pertinent art of Seki.

In regards to claim 61, Seki discloses the following:

a) transparent bonding layer is formed from a material selected from the group of optical glass, chalcogenide glass, III-V semiconductors, II-VI semiconductors, group IV semiconductors, metals, metal oxides, metal fluorides, yttrium aluminum garnet, phosphides, arsenides, anlimonides, nitrides, and combinations thereof (For Example: See Page 1240).

In regards to claim 62, Seki fails to disclose the following:

a) transparent bonding layer includes one or more luminescent materials that convert light of a wavelength emitted by said active region to at least another wavelength.

Although Osenbach fails to specifically disclose the limitations listed above, the same material is utilized in Anthony as in Applicant's invention therefore it would have the same characteristics.

In regards to claim 63, Seki fails to discloses the following:

a) bonding layer has a thickness less than about 500 Angstroms.

Additionally, the applicant has not established the critical nature of a bonding layer that has a thickness less than 500 Angstroms. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir.1990). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have various ranges.

In regards to claim 64, Seki discloses the following:

a) surface includes a surface of one of said semiconductor layers (For Example: See Figure 1).

In regards to claim 65, Seki fails to discloses the following:

a) bonding layer has an index of refraction greater than about 1.5 for light emitted by said active region.

Although Osenbach fails to specifically disclose the limitations listed above, it appears that it is known that the refractive index of aluminum oxide can range from 1.0-2.65 (See Cerac Technical Publications).

In regards to claim 66, Seki discloses the following:

a) surface includes a surface of a transparent superstrate layer (11) disposed above said semiconductor layers (For Example: See Figure 1).

8. Claims 67 and 68 are rejected under 35 U.S.C. 103(a) as obvious over Seki et al. (U.S. Patent No. 5,553,089) in view of Anthony *Dielectric Isolation of Silicon by Anodic Bonding* or Osenbach et al. *Low Cost/High Volume Laser Modules Using Silicon Optical Technology* and Sickmiller (U.S. Patent No. 6,214,733).

In regards to claims 67 and 68, Seki fails to discloses the following:

a) superstrate layer is formed from a material selected from the group of sapphire, SiC, GaN and GaP that has a refractive index for light emitted by said active region greater than about 1.8.

However, Sickmiller discloses utilizing a sapphire superstrate layer (For Example: See Column 3 Lines 46-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Seki to include a sapphire superstrate as disclosed in Sickmiller because it aids in preventing the device from shifting (For Example: See Column 3 Lines 46-60).

Additionally, since Seki and Sickmiller are both from the same field of endeavor, the purpose disclosed by Sickmiller would have been recognized in the pertinent art of Seki.

9. Claim 71 is rejected under 35 U.S.C. 103(a) as obvious over Seki et al. (U.S. Patent No. 5,553,089) in view of Anthony *Dielectric Isolation of Silicon by Anodic Bonding* or Osenbach et al. *Low Cost/High Volume Laser Modules Using Silicon Optical Technology* and Musk (U.S. Patent No. 4,983,009).

In regards to claim 71, Seki fails to discloses the following:

a) lens is formed from a material selected from the group of zirconium oxide, sapphire, GaP, ZnS, materials containing lead oxide, materials containing tungsten oxide, and SiC.

However, Musk discloses utilizing a sapphire lens (For Example: See Column 3 Lines 49-51). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Seki to include a sapphire lens as disclosed in Musk because it aids in providing a high refractive index (For Example: See Column 3 Lines 49-59).

Additionally, since Seki and Musk are both from the same field of endeavor, the purpose disclosed by Musk would have been recognized in the pertinent art of Seki.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 571-272-1838. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722 for regular and after final

communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ML

March 18, 2004

Mary Wilczewski
Primary Examiner